



Problem M: Aegis

Time limit: 1.0s; Memory limit: 256 MB

In the Aegis space defense perimeter, a system of N outpost stations is arranged in a closed ring, numbered from 1 to N in clockwise order.

Between any two adjacent stations on the ring, there is a bidirectional power cable:

- The i -th cable connects station i and station $i + 1$ (for $1 \leq i \leq N - 1$); disconnecting it saves an amount of energy of B_i .
- The N -th cable connects station N and station 1; disconnecting it saves an amount of energy of B_N .

The military high command establishes M emergency strategic links. The j -th link requires that stations u_j and v_j ($u_j \neq v_j$) must maintain communication connectivity with each other along the remaining active cable network.

To assist coordination efforts, the command proposes Q independent maintenance plans. In the k -th plan, the command designates a strategic sector consisting of cables with consecutive indices from L_k to R_k ($1 \leq L_k \leq R_k \leq N$):

- All cables outside the sector $[L_k, R_k]$ must remain operational.
- Within the sector $[L_k, R_k]$, the command wants to disconnect a subset of cables such that the total energy saved is maximized, while ensuring that all M strategic links across the entire perimeter remain uninterrupted.

Your task is to determine the maximum total energy saving achievable in the sector for each maintenance plan.

Input

- The first line contains three integers N , M , and Q ($3 \leq N \leq 2 \times 10^5$, $1 \leq M \leq 2 \times 10^5$, $1 \leq Q \leq 2 \times 10^5$) — the number of outpost stations, the number of strategic links, and the number of maintenance plans.
- The second line contains N positive integers $B_1, B_2, \dots, B_N$ ($1 \leq B_i \leq 10^9$) — the energy saved when disconnecting each corresponding cable.
- The next M lines, the j -th line contains two integers u_j and v_j ($1 \leq u_j, v_j \leq N$, $u_j \neq v_j$) — the two stations of the j -th strategic link.
- The next Q lines, the k -th line contains two integers L_k and R_k ($1 \leq L_k \leq R_k \leq N$) — the sector range of the k -th maintenance plan.

Output

Print Q lines, each containing a single integer representing the maximum total energy saved for the corresponding plan.



Sample

Sample Input	Sample Output
5 2 2 10 20 15 30 40 1 3 2 4 1 5 2 4	70 30

Explanation

The perimeter has 5 cables with energy savings respectively: $B = [10, 20, 15, 30, 40]$. There are 2 strategic links: (1, 3) and (2, 4).

- Plan 1 ($L = 1, R = 5$): The considered sector is the entire ring $[1, 5]$. We can simultaneously disconnect the two cables e_4 and e_5 while both pairs (1, 3) and (2, 4) still maintain communication. The total energy saved is $B_4 + B_5 = 30 + 40 = 70$.
- Plan 2 ($L = 2, R = 4$): The considered sector consists of cables $\{e_2, e_3, e_4\}$. The cables outside the sector (e_1, e_5) must remain operational. In this sector, we cannot disconnect any two cables simultaneously because it would disrupt at least one strategic link. Therefore, we can only disconnect the single most profitable cable among the three: choosing e_4 yields a saving of $B_4 = 30$.